# GROWING UP WITH US™...

## A Newsletter For Those Who Care For Children

Volume 11, No. 2, February 2005

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# ©FAILURE TO THRIVE

**Behavioral Objectives: After reading this newsletter the learner will be able to:**

1. **Discuss medical disorders and parenting limitations which can cause FTT.**
2. **Discuss the role of the healthcare professional in assessment of growth and nutrition, as well as management of FTT.**

*Failure to thrive (FTT) is a sign of growth failure in an infant or child due to malnutrition. Although it has been recognized for more than a century, FTT lacks a precise definition, in part because it describes a condition, rather than a specific disease. Infants and young children, who fail to thrive, don't receive or are unable to take in or retain adequate nutrition to gain weight and grow as expected. The typical picture of FTT is one of an infant who starts out growing well, but over time begins to fall off, particularly in weight gain. After a while, linear growth (height) slows as well. If the condition progresses, the undernourished child may become apathetic and irritable, and may not reach developmental milestones, such as sitting up, walking, and talking at the usual age.*

*Ten percent of infants and young children seen in primary care settings show signs of growth failure. This newsletter will discuss medical disorders and parenting limitations which can cause FTT. The role of the healthcare professional in assessment of growth and nutrition, as well as management of FTT, will be examined.*

## UNDERLYING CAUSES:

In the past, cases of failure to thrive were categorized as either organic (caused by an underlying medical disorder or illness) or non-organic (caused by a primary caregiver's behavior). Medical and behavioral causes often appear together. For example, if a baby has severe gastrointestinal reflux and is reluctant to eat, feeding times can be stressful. The caregiver may become tense and frustrated, making it difficult to sustain attempts to feed the child.

**Organic:** Some children fail to thrive because of a medical disorder. For example, if an infant has difficulty eating, due to a cleft lip or palate, he or she may not take in enough calories to met growth needs. Conditions such as gastroesophageal reflux, cystic fibrosis, chronic liver disease, and celiac disease can also result in failure to thrive. With reflux, the esophagus may become so irritated that the child refuses to eat because it is painful. Cystic fibrosis, chronic liver disease, and celiac disease are conditions that limit the body's ability to absorb nutrients. These are known as malabsorption disorders. That is, the child may eat sufficient amounts, but his or her body does not absorb and utilize sufficient nutrients. Celiac disease results from a sensitivity to a dietary protein found in wheat and certain other grains. The immune system's abnormal response to this protein causes damage to the lining of the intestine, interfering with its ability to absorb nutrients.

Inborn errors of metabolism, such as phenylketonuria (PKU), can also limit a child's ability to utilize calories consumed. Metabolic disorders make it difficult for the body to break down, process and derive energy from food. A buildup of toxins, during the breakdown process, can also occur, which can make the infant feed poorly or vomit.

A host of other medical causes, including neurologic, cardiac, endocrine, and respiratory ones, may also be linked to failure to thrive.

In some cases, the specific medical cause of FTT may be difficult to pinpoint. The underlying factor causing FTT may be a primary caregiver's attitude and/or behavior.

**Non-Organic:** Non-organic FTT is most common in infants. Some parents, having a distorted fear of obesity, may restrict the amount of calories they give their infants. Either extreme of parental attention (neglect or hypervigilance) can also lead to FTT. Other parental factors may include a lack of education, immaturity, physical and mental health problems, including drug dependence. With FTT, there may also be a disturbance in parent-child attachment, resulting in the infant's basic needs not being met, including that for food and love. Consequently, the infant, literally, can lose the will to live. A infant whose parent is isolated, under stress, has inadequate support systems and/or had poor parenting role models as a child, are at increased risks for attachment problems.

Infants with failure to thrive, resulting from a caregiver's inabilities, often display little interest in social interactions. They often become distressed as people get close to them, including family and healthcare providers. They may dislike being touched or held and often avoid face-to-face contact. When held they typically assume either a rigid or limp posture, not conforming to the caregiver's body.

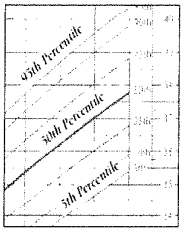
## ASSESSMENT:

Most diagnoses of failure to thrive are made in the first few years of life, a crucial period of physical and mental development. Frequently there is a history of difficult feeding, vomiting, sleep disturbances and excessive irritability.

**Growth:** Assessing growth is a key element in evaluating the health status of children, including screening for FTT. To recognize abnormal growth, one needs to understand normal trends. On average, infants gain 1½ pounds per month in the first 6 months, while gaining 1 lb per month from 6-12 months. Typically, term infants double their birth weight by age 6 months and triple it by age 12 months. After the rapid growth of infancy, growth slows until the rapid growth spurt of adolescence.

Term infants can be expected to grow 1 inch/month from birth-6 months and ½ inch from 6-12 months. Birthlength usually increases by 50% at 12 months. Growth then slows until puberty.

The average head circumference at birth is between 13 and 14 inches (33-35.5 cm) and head circumference is usually about 1 inch (2-3 cm) greater than the chest circumference. In general, head and chest circumference are equal between 1 to 2 years. Head circumference reaches an average of 21½ inches (55 cm) by age 6.




The above are only trends in growth. For a more accurate assessment, growth should regularly be plotted on a standardized growth chart, gender and age-specific—0-36 months or 2-18 years. Weight, height, head circumference, and BMI –body mass index, are included in this assessment. The 5th and 95th percentiles are used as criteria for determining if a child's growth is within normal limits. If a child's weight is plotted below the 5th percentile, he or she is underweight; over 95%, overweight. It is important to understand the difference between percentile and percentage. If growth is plotted at the 10th percentile, it does not indicate that 10% of children, of that particular age and gender, weigh that amount. Instead, this means 10% of children of that age and gender weigh less, while 90% weigh more.

When plotting growth for premature babies, a "corrected" age should be used, rather than the chronological age. This corrected age is calculated by subtracting the number of weeks of prematurity from the postnatal age. After catch-up growth is attained, at approximately 18 months for head circumference, 24 months for weight, and 40 months for height, chronological age should be used for future assessments.

Most practitioners diagnose FTT when a child's weight for age falls below the fifth percentile on the standard growth chart. Recent research has validated that the weight-for-age assessment is the simplest and most accurate marker for FTT. Other growth parameters, that can assist in making the diagnosis of FTT, are weight for height and height for age. FTT is diagnosed if a child falls below the 10th percentile for either of these measurements.

Every effort should be made to detect trends in growth, rather than to rely on measurements at a particular time. Many babies go through brief periods when their weight gain plateaus or they even lose weight. These are normal intervals of growth. For example, weight drops as much as 10% in the first few days of life, probably as a result of loss of excess fluid. However, birth weight is usually regained within 2 weeks after birth.

**Nutrition:** Crying during feedings, hoarding food in the mouth, ruminating after feeding, and turning away from the breast/bottle and/or solid food are common patterns of infants with FTT during feedings. Some children with failure to thrive have "difficult" temperaments, while others are passive, sleepy and lethargic, and do not wake up for feedings.

Since children with FTT are malnourished, regardless of the cause, a dietary history provides important information. Asking questions, such as "How many bottles does your baby take a day?"; "Are they 4 or 8 ounce bottles?"; "How often is he fed?"; "How much does he take at a feeding?"; "Does he take solid foods?" If, so, "How much at each feeding?"

A guideline to determine the proper number of ounces the bottle-fed infant should consume in 24 hours is to multiply his or her weight in kilograms by 5. Full-term infants need 100 kcal/kg and each ounce of standard formula contains 20 kcal/oz. Thus, for each kilogram (2.2. pounds) of a child's weight, 5 ounces [100 divided by 20] ounces are needed for proper growth and weight gain. For example, a child who weighs 4 kg needs 20 oz of formula per day [4 kg X 5 = 20].

**MANAGEMENT:** Once FTT is identified, if possible, it should be determined whether non-organic FTT, organic FTT, or a combination of the two is present. The goal of management is to reverse growth failure. All children with FTT need additional calories for catch-up growth (typically 150 percent of the caloric requirement for their expected, not actual, weight).

Caring for a child with non-organic FTT is particularly complex. Consistent staff on all shifts to care for the child and family is essential. Initially staff should role-model feeding the child, with the primary caregiver present. Feeding should be limited to 30 minutes and should occur in a quiet, non-stimulating environment. A calm, even temperament should be maintained throughout feeding. The goal is for the child to associate eating with pleasure. Being persistent, positive and calm, even if the child refuses food, is essential. Eye-contact should be established, if possible, with the child during feeding. Parents should then gradually assume feeding and other child care tasks, while supervised and supported by the staff member. They should be praised, step-by step, for success.

Accurate assessment and documentation of the child's daily weight is essential. All food intake, the feeding behavior of the child, as well as the parent-child interaction, during feeding and other care-giving activities, should also be assessed and documented.

*Children with FTT have individualized needs, often based on the cause of their malnutrition. Healthcare providers are in a unique role to promote the health of those with FTT, as well as their families.*

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